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**WE CLAIM:**

- 1 A method for determining susceptibility or predisposition of a patient to obesity comprising identifying in said patient an amino acid substitution in the neuromedin- $\beta$  polypeptide or a nucleotide substitution in correspondent encoding gene thereof or quantifying neuromedin- $\beta$  nucleotide sequence level, wherein substitution of at least one nucleotide sequences in said amino acid or nucleotide sequence or decrease in nucleotide sequence quantity compared to a normal patient, is representative of the predisposition or susceptibility to obesity, said obesity being representative of disinhibition or susceptibility or predisposition to hunger or to eating behavior disorders.
2. The method of claim 1, wherein said nucleotide substitution is replacement of a cytosine by an adenine at position 217 of SEQ ID NO:1.
3. The method of claim 1, wherein said amino acid substitution is replacement of proline by a threonine at position 73 of SEQ ID NO:2.
4. The method of claim 1, wherein said obesity is body fatness, abdominal obesity, or visceral obesity.
5. A method for diagnosing predisposition or susceptibility to obesity related to eating behavior disorders comprising the steps of:
  - a) characterizing sequence or quantity of nucleotide encoding for neuromedin- $\beta$  or amino acid sequence of neuromedin- $\beta$  in a biologic sample of a patient; and
  - b) determining the presence or absence of nucleic or amino acid substitution or the quantity of neuromedin- $\beta$  nucleic acid sequence in said characterized biological sample of step a);wherein substitution of at least one nucleotide or amino acid in said nucleotide or amino acid sequence, or decrease in the quantity of said nucleotide compared to a normal patient, is representative of the predisposition or susceptibility to eating behavior disorders.

**AMENDED SHEET**

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6. The method of claim 5, wherein said nucleotide sequence is DNA or a RNA.
7. The method of claim 5, wherein said eating behavior disorder is disinhibition and susceptibility to hunger.
8. The method of claim 5, wherein said substitution is corresponding to the substitution of the cytosine by an adenine at position 217 of SEQ ID NO:1.
9. The method of claim 5, wherein said substitution is corresponding to the substitution of a proline by a threonine at position 73 of SEQ ID NO:2.
10. The method of claim 5, wherein said nucleotide encoding for neuromedin- $\beta$  is messenger RNA nucleotide